

## Traditional Science Fair - Student Packet

### Due Dates Checklist

Check	Date	Assignment
	Thurs. 11/2	Project proposal (Testable Question) page - This is the last page of this packet. You will rip it off and turn it into Ms. Dobler.
	Thurs. 11/30	Background Research - Detailed information about background research can be found on page 3 of this packet and in the packet student's will receive from Ms. Hamm in November.
	Thurs. 12/14	Drafted Experimental Design (Introduction, Hypothesis, Variables, Materials, Procedure) - Details on page 4
	Thurs. 1/11	Results, including data table and graph (if appropriate)
	Thurs. 2/1	Final Project is due and displayed at the WLPCS STEM Fair

Students will also present in class during the week of 1/22 - 1/26.

Note: Student will receive another packet after Thanksgiving Break that includes detailed directions for the last three deadlines.

# Project Overview

This project asks you to follow the scientific method. This means selecting a testable question, defining variables, designing and carrying out an experiment to test your question, and analyzing and presenting results.

In order to be successful with a traditional science fair project, you will:

1. Select a testable question - This question can be about any topic in Science. You know it is a testable question if you can design an experiment to find the answer.
2. Explore/Research your topic - In order to successfully design an experiment to test your question, you need to fully and completely understand the topic. This includes researching facts about the topic (learning how batteries work if you are testing different brands), researching the science concepts behind the problem (learning about forces and gravity if you are testing different types of sports balls), and what experiments and research others have done in the past. Ms. Hamm will help get you started with the background research during the first week of November.
3. Lab Design (Hypothesis, Variables, Materials, Basic Procedure) - Once you fully understand your topic, you are ready to refine your question and begin crafting your procedure. What will you do to test your question and find an answer? This basic procedure will help you identify variables, create a list of materials, and write a hypothesis.
4. Conduct your experiment - Depending on your question, your experiment may be quick or it may take weeks. Be sure to plan ahead to leave yourself enough time to finish the experiment. As you conduct the experiment, keep detailed records of what you do and what materials you use. It is also a good idea to take pictures of your work, as you can use these on your board later.
5. Refine your materials and procedures - Go back to your drafted materials list and procedure from step 3. Update both to ensure that they match what you actually did. Be as detailed as possible. Remember, anyone should be able to pick up your lab report and repeat your experiment.
6. Analyze your results - Depending on your experiment, this data may be written observations, photographs, or numerical data. Look closely at your data for patterns or trends. Create graphs, data tables, or other visual representations of what you learned.
7. Display your work - You will turn in a formal lab report and create a tri-fold display showcasing your work.

# Background Research

Product: Due Thursday 11/30

Completed Source Saver and Notes document.

- This document is found in classroom.google.com
- This is the document Ms. Hamm introduced in November
- All **three** sources should be finished

You will turn in at least one full paragraph of research specifically related to your Science Fair topic. A full paragraph means at least 7 sentences. This paragraph will demonstrate that you deeply understand your Science topic. This includes researching facts about the topic (learning how batteries work if you are testing different brands), researching the science concepts behind the problem (learning about forces and gravity if you are testing different types of sports balls), and what experiments and research others have done in the past.

Need help finding good sources? Check out the LiveBinder link below (or on the wiki) for a wide variety of pre-approved Science research resources.

[Link to Resources for Research](#)

# Drafted Experimental Design

Product: Due Thursday 12/14

The document, titled **Traditional Science Fair - Drafted Experimental Design** can be found in [classroom.google.com](https://classroom.google.com).

You should copy/paste and/or update your background research paragraph and add it into this template.

You should follow the prompts in the document to draft an introduction paragraph, identify your variables, and write a hypothesis.

You should write a drafted list of the materials you will use. Be as specific as possible (list amounts, sizes, brands, etc.)

You should write a drafted procedure (list of steps) that you plan to follow in your experiment. Remember you want to be as specific as possible. Any person should be able to read your procedure and repeat your experiment.

**This step prepares you to begin your experiment and collect data.**

Name \_\_\_\_\_

Period \_\_\_\_\_

## Proposal Form (Science Fair - Testable Question)

Due Thursday November 2nd.

1. Write your testable question. It should be in the form of a question.
2. Give a brief summary (2-3 sentences) explaining how you might test your question or what the variables in your experiment might be. It is okay if this changes later!

If you are working with a partner/group of three, please fill out the questions below. Signing below means that you and your parent understand that this is an out of class project and have carefully thought through how and when you are going to get together with your partner to work.

1. Partner(s) \_\_\_\_\_

2. Parent Signature \_\_\_\_\_